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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

AUGHENBAUGH, WALTER

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 02/27/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/870,480

Applicant(s)

FUKUI, KOUKI

Examiner

Walter B Aughenbaugh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Acknowledgement of Applicant's Amendments

1. The new abstract provided in the Substitute Specification (Paper #6) has been received and considered by Examiner.
2. The Substitute Specification (Paper #6) has been received and considered by Examiner. The addition of new claims 15-41 given on pages 1-6 of Applicant's Amendment (Paper #5) have been received and considered by Examiner.
3. Examiner acknowledges the cancellation of claims 1-14.

WITHDRAWN OBJECTIONS

4. The objection to the abstract made of record in Paper #4, page 2, paragraph 1 has been withdrawn due to Applicant's submission of a new abstract in Paper #6.
5. The objection to the specification made of record in Paper #4, page 2, paragraph 2 has been withdrawn due to Applicant's submission of a Substitute Specification (Paper #6).

WITHDRAWN REJECTIONS

6. The 35 U.S.C. 112 rejection of claims 1, 3-5 and 7-14 of record in Paper #4, pages 2-4, paragraph 4 has been withdrawn due to Applicant's cancellation of claims 1-14 in Paper #5.
7. The 35 U.S.C. 102 rejection of claims 1-3, 5-6, 8-10 and 12-13 as anticipated by Parrott et al. of record in Paper #4, page 4, paragraph 6 has been withdrawn due to Applicant's cancellation of claims 1-14 in Paper #5.
8. The 35 U.S.C. 103 rejection of claims 4, 7, 11 and 14 over Parrott et al. in view of Rechsteiner et al. of record in Paper #4, pages 5-6, paragraph 8 has been withdrawn due to Applicant's cancellation of claims 1-14 in Paper #5.

NEW REJECTIONS

Claim Rejections - 35 USC § 112

9. Claims 28, 30, 37 and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 28 and 37 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship between the opposing side edges of the noncombustible joint member and the axially extending portions of the flanges. The structure intended to be recited by "in a folded-over relation with" is not clear. Is only one of the joint member and the axially extending portion of the flange "folded-over", or are both folded-over? The manner via which the two components are "in a folded-over relation with" each other must be definitely recited by means of a clarification in the structure involved.

In regard to claims 30 and 41, the structure intended to be recited by the phrase "flanges project toward the interior" is indefinite. The structure must be more particularly pointed out.

Claim 41 recites the limitation "said flanges" in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

10. Claims 15, 18, 20-23, 25-27, 31, 32 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parrott et al. in view of Clarke.

In regard to independent claim 15, Parrott et al. teach a noncombustible insulating duct (page 1, first paragraph) comprising panels (item 5, Figure 1) of sheet material secured together by a bonding agent (paragraph bridging pages 4 and 5). The panels of sheet material comprise resin-bonded mineral wool strips (item 7) adhesively bonded to and encased by inner and outer galvanized noncombustible steel sheets (item 9) (page 6, first four lines of last paragraph, and Figures 1-4). The mineral wool sheet material is a fire-resisting material (i.e. an insulating material) (first three lines and last seven lines of page 2).

Parrott et al. fail to teach that the sheet material is in the form of an elongated strip that is arranged in a spiral shape having a plurality of turns wherein adjacent turns of the plurality of turns are secured together so as to form a tubular duct.

Clarke, however, discloses a tubular ventilation duct (col. 1, lines 30-33) formed of spirally wound tape (the equivalent of an elongated strip "arranged in a spiral shape having a plurality of turns" as claimed) (col. 1, lines 23-29 and Figures 2 and 3). Clarke discloses that a bonding agent adhesively secures side portions of adjacent turns together (col. 1, lines 54-58). One of ordinary skill in the art would have recognized to have formed the sheet material of Parrott et al. into an elongated strip of sufficient length so as to spirally wind the elongated strip into a tubular duct having a plurality of turns wherein adjacent turns of the plurality of turns are secured together by a bonding agent as Clarke teaches that it is notoriously well known to form a tubular ventilation duct formed of a spirally wound elongated strip of ventilation sheet material.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the sheet material of Parrott et al. into an elongated strip of sufficient length so as to spirally wind the elongated strip into a tubular duct having a plurality of turns

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wherein adjacent turns of the plurality of turns are secured together by a bonding agent as Clarke teaches that it is notoriously well known to form a tubular ventilation duct formed of a spirally wound elongated strip of ventilation sheet material.

In regard to independent claims 22 and 31, Parrott et al. teach the noncombustible insulating duct as discussed above. Parrott et al. also teach that in addition to being secured together by a bonding agent, or as an alternative to being secured together by a bonding agent (paragraph bridging pages 4 and 5), panels (item 5) of the sheet material are connected via jointing strip (item 17, the noncombustible joint member as claimed by Applicant) which comprises a mineral wool core (paragraph on page 8-9 and Figure 5); the mineral wool core of jointing strip (item 17) is adhesively bonded to the steel cladding (item 9 of Figure 5, the flange as claimed by Applicant in claims 27 and 36) as mineral wool sheet (item 7) is adhesively bonded to inner and outer galvanized steel sheets (item 9 of Figures 1-4) as taught in the first four lines of the last paragraph of page 6.

Parrott et al. fail to teach that the sheet material is in the form of an elongated strip that is arranged in a spiral shape having a plurality of turns wherein adjacent turns of the plurality of turns are secured together so as to form a tubular duct.

Clarke, however, discloses the tubular ventilation duct (col. 1, lines 30-33) formed of spirally wound tape (the equivalent of an elongated strip "arranged in a spiral shape having a plurality of turns" as claimed) as discussed above (col. 1, lines 23-29 and Figures 2 and 3). One of ordinary skill in the art would have recognized to have formed the sheet material of Parrott et al. into an elongated strip of sufficient length so as to spirally wind the elongated strip into a tubular duct having a plurality of turns wherein each pair of adjacent turns of the plurality of

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turns are secured together by the noncombustible joint member of Parrott et al. in addition to (in the case of claim 31), or as an alternative to (in the case of claim 22), the bonding agent of Parrott et al. (discussed in the paragraph bridging pages 4 and 5), as Clarke teaches that it is notoriously well known to form a tubular ventilation duct formed of a spirally wound elongated strip of ventilation sheet material.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the sheet material of Parrott et al. into an elongated strip of sufficient length so as to spirally wind the elongated strip into a tubular duct having a plurality of turns wherein each pair of adjacent turns of the plurality of turns are secured together by the noncombustible joint member of Parrott et al. in addition to (in the case of claim 31), or as an alternative to (in the case of claim 22), the bonding agent of Parrott et al. (discussed in the paragraph bridging pages 4 and 5), as Clarke teaches that it is notoriously well known to form a tubular ventilation duct formed of a spirally wound elongated strip of ventilation sheet material.

In regard to claims 18, 20, 23, 25, 32, and 34, Parrott et al. teaches that mineral wool material (which is composed of mineral fibers) such as rock wool (first full paragraph of page 3) is the noncombustible insulating material (first three lines and last seven lines of page 2); therefore, the noncombustible insulating material comprises noncombustible insulating fibers.

In regard to claims 21, 26 and 35, the elongated strip (i.e. tape) of Clarke has a substantially rectangular cross section (see the cross section of the elongated strip with item 16 attached to the cross section of the elongated strip in the lower left-hand corner of Figure 2 and also see the cross sections of the three turns of the elongated strip shown at the top of the portion of the tubular duct shown in Figure 3).

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In regard to claims 27 and 36, Parrott et al. and Clarke teach the tubular noncombustible insulating duct as discussed above in the rejection of claims 22 and 31. The elongated strip taught by Parrott et al. and Clarke has first and second opposite sides facing in opposing axial directions of the tubular duct, respectively, and inner and outer sides facing toward an interior of the tubular duct and an exterior of the tubular duct, respectively (see Figure 2 of Clarke). The elongated strip taught by Parrott et al. and Clarke has flanges (steel cladding, see item 9 of Figure 5 of Parrott et al. and paragraph on pages 8-9 of Parrott et al.) projecting from the first and second sides thereof, respectively. In regard to the limitation that the “noncombustible joint member is secured to said flanges of adjacent turns of said elongated strip to connect said flanges together, thereby connecting said turns together”, the jointing strip (item 17, the noncombustible joint member as claimed by Applicant) is adhesively bonded to the steel cladding (item 9 of Figure 5, the flanges as claimed by Applicant in claims 27 and 36), and is therefore “secured to said flanges of adjacent turns of said elongated strip to connect said flanges together, thereby connecting said turns together”.

11. Claims 16, 17 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parrott et al. in view of Clarke, and in further view of Yamaguchi et al.

Parrott et al. and Clarke teach the noncombustible insulating duct as discussed above. Parrott et al. teaches that the mineral wool material (which is composed of mineral fibers) such as rock wool (first full paragraph of page 3) is the noncombustible insulating material (first three lines and last seven lines of page 2); therefore, the noncombustible insulating material comprises noncombustible insulating fibers.

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Parrott et al. and Clarke fail to explicitly teach that the bonding agent comprises a noncombustible bonding agent.

Yamaguchi et al., however, discloses a noncombustible bonding agent for noncombustible inorganic fibers (col. 1, lines 5-12), such as rock wool and glass fiber (col. 1, lines 18-21), and noncombustible sheet materials obtained from the noncombustible inorganic fibers and noncombustible bonding agent (col. 1, lines 16-17 and col. 1, lines 32-42). One of ordinary skill in the art would have recognized to have used the noncombustible bonding agent as the bonding agent of Parrott et al. and Clarke in order to secure together adjacent turns of the plurality of turns comprising the noncombustible insulating fiber material since Yamaguchi et al. establish that it is notoriously well known to use a noncombustible bonding agent to bond noncombustible fibrous materials.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the noncombustible bonding agent as the bonding agent of Parrott et al. and Clarke in order to secure together adjacent turns of the plurality of turns comprising the noncombustible insulating fiber material since Yamaguchi et al. establish that it is notoriously well known to use a noncombustible bonding agent to bond noncombustible fibrous materials.

12. Claims 19, 24 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parrott et al. in view of Clarke, and in further view of Berdan, II.

Parrott et al. and Clarke teach the noncombustible insulating duct as discussed above. Parrott et al. and Clarke fail to teach that the noncombustible insulating fiber is glass wool. Berdan, II, however, discloses that mineral fibers such as fibrous glass wool is a notoriously well known insulating fiber material (col. 1, lines 13-21). Therefore, one of ordinary skill in the art

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would have recognized to have used glass wool as the noncombustible insulating fiber of the duct of Parrott et al. and Clarke since Berdan, II discloses that glass wool is a notoriously well known insulating fiber material.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used glass wool as the noncombustible insulating fiber of the duct of Parrott et al. and Clarke since Berdan, II teaches that glass wool is a notoriously well known insulating fiber material.

13. Claims 28, 29, 30, 37, 38 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parrott et al. in view of Clarke, and in further view of Hinden et al.

In regard to claims 28 and 37, Parrott et al. and Clarke teach the noncombustible insulating duct having flanges (steel cladding, item 9 of Figure 5) which include axially-extending portions extending in axial directions of the tubular duct as discussed above.

Parrott et al. and Clarke fail to teach that the noncombustible joint member has opposing side edges that are in a folded-over relation with the axially extending portions of the flanges of the adjacent turns of the elongated strip.

Hinden et al., however, disclose a flexible connector material used in air ducting (col. 1, lines 6-12) the noncombustible joint member as claimed by Applicant) having air-impervious sheets (items 17 and 18, Figure 5) encasing insulating material such as glass wool material (item 22, Figures 3-5, the insulating material is not labeled in Figure 5) (col. 2, line 49 – col. 3, line 8). The noncombustible joint member of Hinden et al. has marginal edges (items 19, the opposing side edges as claimed) that are clamped within recesses (items 21) formed by the bent marginal edges (items 16 labeled in Figures 3 and 4, the axially extending portions of the flanges as

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claimed) of the strips (items 13 and 14, the flanges as claimed); therefore, the noncombustible joint member of Hinden et al. is in a folded over relation with the axially extending portions of the flanges (col. 3, lines 1-5 and Figures 3-5). Therefore, one of ordinary skill in the art would have recognized to have formed the flanges of the duct of Parrott et al. and Clarke in the shape of the bent marginal edges (items 16) of the flanges of Hinden et al. such that the opposing side edges of the joint member of Parrott et al. and Clarke in a folded over relation with the axially extending portions of the flanges of the adjacent turns of the elongated strip, since Hinden et al. teach that it is notoriously well known to arrange the opposing side edges of the joint members used in ducting in a folded-over relation with the axially extending portions of the flanges in order to provide effective insulating properties over protracted periods of time (col. 1, line 67-col. 2, line 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the flanges of the duct of Parrott et al. and Clarke in the shape of the bent marginal edges (items 16) of the flanges of Hinden et al. such that the opposing side edges of the joint member of Parrott et al. and Clarke in a folded over relation with the axially extending portions of the flanges of the adjacent turns of the elongated strip, since Hinden et al. teach that it is notoriously well known to arrange the opposing side edges of the joint members used in ducting in a folded-over relation with the axially extending portions of the flanges in order to provide effective insulating properties over protracted periods of time as taught by Hinden et al.

In regard to claims 29 and 38, the elongated strip (i.e. tape) of Clarke has a substantially rectangular cross section (see the cross section of the elongated strip with item 16 attached to the

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cross section of the elongated strip in the lower left-hand corner of Figure 2 and also see the cross sections of the three turns of the elongated strip shown at the top of the portion of the tubular duct shown in Figure 3).

In regard to claims 30 and 41, Parrott et al., Clarke and Hinden et al. teach the duct as discussed above. Note that the limitation "said flanges" recited in claim 41 lacks antecedent basis. Parrott et al. teaches that a portion of the flange (item 9, Figure 5) projects toward the interior of the duct, and that the joint member (item 17) is in contact with the interior of the duct (see Figure 5).

Parrott et al., Clarke and Hinden et al. fail to teach that the entire flange projects toward the interior of the tubular duct or that the joint member is disposed in the interior of the tubular duct.

However, as Hinden et al. disclose that the joint member, which is provided on the exterior of the duct, is for providing effective insulating properties over protracted periods of time (col. 1, line 67- col. 2, line 4), one of ordinary skill in the art would have recognized that the joint member of Hinden et al. would perform the equivalent function of providing effective insulating properties over protracted periods of time whether the joint member was provided on the exterior of the duct or in the interior of the duct. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the duct taught by Parrott et al., Clarke and Hinden et al. such that the flanges project toward the interior of the tubular duct and therefore such that the noncombustible joint member is disposed in the interior of the tubular duct, since the joint member of Hinden et al. would perform the equivalent

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function of providing effective insulating properties over protracted periods of time whether the joint member was provided on the exterior of the duct or in the interior of the duct.

14. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parrott et al. in view of Clarke, in further view of Hinden et al., and in further view of Yamaguchi et al.

Parrott et al., Clarke and Hinden et al. teach the duct as discussed above.

Parrott et al., Clarke and Hinden et al. fail to explicitly teach that the bonding agent comprises a noncombustible bonding agent.

Yamaguchi et al., however, discloses a noncombustible bonding agent for noncombustible inorganic fibers (col. 1, lines 5-12), such as rock wool and glass fiber (col. 1, lines 18-21), and noncombustible sheet materials obtained from the noncombustible inorganic fibers and noncombustible bonding agent (col. 1, lines 16-17 and col. 1, lines 32-42). One of ordinary skill in the art would have recognized to have used the noncombustible bonding agent as the bonding agent of Parrott et al., Clarke and Hinden et al. in order to secure together adjacent turns of the plurality of turns comprising the noncombustible insulating fiber material since Yamaguchi et al. establish that it is notoriously well known to use a noncombustible bonding agent to bond noncombustible fibrous materials.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the noncombustible bonding agent as the bonding agent of Parrott et al., Clarke and Hinden et al. in order to secure together adjacent turns of the plurality of turns comprising the noncombustible insulating fiber material since Yamaguchi et al. establish that it is notoriously well known to use a noncombustible bonding agent to bond noncombustible fibrous materials.

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ANSWERS TO APPLICANTS ARGUMENTS

15. Applicant's argument on pages 8 and 9 of Paper #5 regarding the 35 U.S.C. 102 rejection of claims 1-3, 5-6, 8-10 and 12-13 as anticipated by Parrott et al. and the 35 U.S.C. 103 rejection of claims 4, 7, 11 and 14 over Parrott et al. in view of Rechsteiner et al. that the references do not teach the "spirally wound" limitation is rendered moot due to the new rejections made of record in this Office Action (Paper #7). The term "spirally wound" was not given patentable weight in Paper #4 as Applicant points out in lines 12 and 13 of page 8 of Paper #5 due to the indefinite nature of claims 1, 3 and 5 as a whole, and the indefinite nature of the structure intended to be recited by the claim as made of record in paragraph 4 of Paper #4.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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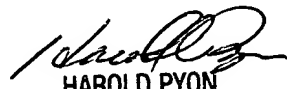
17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter B Aughenbaugh whose telephone number is 703-305-4511. The examiner can normally be reached on Monday-Friday from 9:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on 703-308-4251. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

wba
02/24/03

WBA


HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772

2/24/03